Dynamic Changes in Comparative Advantage of Indonesian Agricultural Products

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Abstract

Indonesia is a large country and most populous among members of ASEAN Economic Community (AEC). The purpose of this study is to perform a "mapping products" for agricultural commodity in Indonesia. This study utilizes data on export and import four-digit in the Standard International Trade Classification (SITC) Revision 2 from UN-COMTRADE for the period 1984-2014. We use Reveled Symmetric Comparative Advantage (RSCA) combined with Trade Balance Index (TBI) in our analysis. The primary result shows that dynamic changes in agricultural commodities have occurred in Indonesia. Agricultural commodities that perform de-specialization are rice, meat of sheep and goats (fresh, chilled, or frozen). On the other hand, agricultural commodities that experience specialization are fishery products. .

Keywords: products mapping, agriculture product, international trade
JEL: Q17, F14

1. INTRODUCTION

According to World Bank (2008), the growth of agricultural sector's value added is relatively lower than that of non-agricultural sectors; and this imbalance is commonly true in developing countries. During the last five years, there is a slowdown of growth in agricultural sector, and considering by regions, Asia has experienced significant decline in agricultural output. By the same time, the engine of growth in this region is leaded by services sector (Park and Shin, 2012). In terms of demographic indicator, Asia's share of population living in rural areas is larger than that in urban areas. Typically, rural community relies on agriculture as main source of income. Therefore, when agricultural sector has slowing down, what will happen to the majority of rural community? Even though nationally share of agricultural output decreasing, but majority of rural community still rely their life in this sector.

Indonesia as the member of Association of South Asian Nation (ASEAN) has actively participated in ASEAN Economic Activity (AEC), through trade in both goods and services. Since the implementation of AEC, it is recorded that the trade ratio of Indonesia compared to total trade of ASEAN member. It was recorded that total trade of Indonesia was 14.02 percent

in 2014, but it is significantly fall to 12.91 percent in 2015. Percentage of Indonesia total export to intra-trade among AEC was 23.3 percent while the percentage of Indonesia total import for intra –trade among AEC has reached 21 percent in the same period, 2014-2015. This figure indicates that even though Indonesia is not the major or leader in ASEAN trade, but Indonesia's contributor is significant.

In Indonesia, agriculture sector dominates the share of contribution for GDP. Agricultural output and share of employment relatively the highest among sectors. For the period of 1960-2015, share of agricultural output to GDP has decreased around 5.11 annually. Output contribution was approximately 51.45 per cent in 1960 but it only around 13.52 per cent in 2015. At the same time, ratio of agricultural employment also decreases significantly. For the period 1985-2014, share of agricultural employment has decrease significantly 2.05 per cent annually. The share of employment relative to total employment was 54.7 per cent in 1985, and it became only 34.3 per cent in 2014. Even though the contribution of agriculture decrease through it output and employment opportunity, but agriculture still contribute for around 46.26 per cent of the Indonesian population.

According to Suryahadi and Hadiwidjaja (2011), agriculture is a unique and strategic sector, especially when economic crisis hit Indonesia in 1998. During the crisis, in general national output decrease for around 19.6 per cent, trade output decreased by 18 per cent, output industry decreased by 9.2 per cent and agriculture output decrease just around 0.7 per cent. Furthermore, agricultural sector was also reported as the fastest one, which recovery from crisis, Agriculture output, could grow at rate 2.1 per cent. Industry sector only has growth rate 1.4 percent. Thins rate is followed by a negative growth by trade and trade service industry which grow at -0.4 and 1.5 per cent respectively. This figure implies that agriculture is a strategic sector.

As an agricultural country and having the most populous population in ASEAN region, implies that Indonesia should have a great influence and specialize in agricultural production as well. Why it is so? The reason is Indonesia has to feed hundred billion of people, and food that is produced by domestic agriculture is very important. Domestically produced food is not only for food security reason but also for employment opportunity and income generating processes. Therefore, it is interesting to investigate the export volume of Indonesia based on the classification, especially in agricultural output. Export product is classified as international standard namely Standard International Trade Classification (SITC). Based on the data in 2004-2014, the export volumes of Indonesia are listed as follows. For food and live animal (SITC 0), the export value was US$3,966.54 billion in 2004, and it increases to US$12,066.72 billion by 2014. On the other hand, the imported value for the same products were US$3,785.48 billion in 2014, and in 2013 counted for US$ 14,576.18 billion (ASEAN Secretariat, 2016). It is clear that recently, during the implementation of AEC; the data indicate Indonesia is a net importer country for primary agricultural product. Even though the price of the agricultural product especially for those in SITC 0 (food and live animal) is more competitive in AEC regional market, but this reasonable price does not relevant for the production process and employment creation domestically.

The purpose of this paper is to investigate the product mapping of Indonesia SITC 0 product, i.e. food and live animal. By utilizing relatively long terms sub sequential data, 1984-2014 from the United Nation Commodity Trade Statistics Database (UN-COMTRADE), this study will analyzes which agricultural output are having comparative advantage and need to be specialized in the future. Standard trade theory measure comparative advantage of a product in an index namely Revealed Symmetric Comparative Advantage (RSCA). On the other hand, Trade balance index or TBI is applied for complement of the RSCA analysis. Following Widodo (2008), this study will combine the RSCA and TBI of SITC 0 Indonesian trade in AEC

and summarize the combination in a simple matrix called the product mapping. By implementing the product mapping, we can find information which output has comparative advantage and which product has efficient specialization. Products that have comparative advantage might not priorities as specialized product and the other way round might also true. Analyzing the empirical data for the periods 30 years would well enough for taking future strategies which agricultural product should be prioritize in national development strategies and program. This is the main contribution of this study.

2. LITERATURE REVIEW

2.1. Comparative Advantage

Trade theory argues why countries should participate in international market and enjoy the benefit from trade with other countries in terms of product and consumption varieties, based on absolute and comparative advantages (Krugman and Obstfeld, 2000). A country is having an absolute advantage if the country able to produces similar quantity or quality of output by using lower labor hour or more efficient machine or better technology compare to similar output produced by other countries. Initially, the terms of absolute advantage related with labor productivity and natural resources, but nowadays it also related with the ability of a country to deliver or distribute the product to difference places at the right time and with efficient way. In the case of Indonesia, according to Baird and Wihardja (2010), due to inequality in logistic facilities such as road quality and the availability of port and airport contribute in difference price of product not only between region but also with substitute product from other countries. Comparative advantage on the other hand, proposes that the benefit of a country from participating in international trade due to ratio or price relative of input used in the production of a particular product. For example, the differences in price ratio between labor per hour

between Indonesia and China make the cloth production more efficient in China. Therefore, Indonesia imports cloth from China even though Indonesia also produces cloth domestically.

Comparative advantage recently not only uses static analysis but also dynamic approach. According to Widodo (2009), dynamic comparative advantage focusing on the dynamic of production. On the other hand, Echevarria (2008) arguing that in the long run, comparative advantage of a nation is determined by the difference in total factor productivity (TFP). Regarding this argument, the dynamic in comparative advantage can be induced by several factors, namely improvement in technology and innovation (Harrigan, 1997; Redding, 2002). Venables (2001) argue that trade barriers such as geographically landlocked, transportation cost, asymmetric information and quality of institution also influence comparative advantage of a nation in participating in trade.

From empirical point of view, measurement of comparative advantage which is proposed by Balassa (1965), has been change recently. To overcome the weakness of RCA value with the rage $(-1 \leq RCA \leq 1)$; i.e this value cannot directly compare with product is specialized and which product is not. Vollrath (1991) proposed a way to overcome this asymmetric measurement by implementing logarithm value of RCA. This new measurement still facing weaknesses, i.e. the RCA is undefined if a particular sector in a country has not contribute to export. Laursen (1998) proposed an analytical to compare the Revealed Symmetric Comparative Advantage (RSCA) with several model of RCA, namely Michaely Index and Chi Square. The result of Laursen study indicates a model RSCA comparative advantage. RSCA ranges from (-1) to (+1).

By relaxing some assumption such as no differences in initial endowment between countries, trade theory proposed by Hecksher-Ohlin or H-O model, which is proposed by two Economist in difference time periods (Hecksher, 1919; Ohlin, 1933). H-O model predict that a country will export a product that is produced domestically which is supported by abundant

input or resources. By the same argument, a country will import a product, which is produced with scarce resources domestically. A further relaxing assumption in basic comparative advantage of international trade is proposed by Akamatsu (1962). The theory argument is known as flying geese model. This model is initially described as trade pattern between developing and developed region. Developing countries is describes as Asia and the developed countries is described by Europe region.

There are seven stages described in the flying geese model which reflecting the stages of trade creation and trade pattern between Europe and Asia. According to Akamatsu (Akamatsu, 1962), the first stage of flying geese model describes the trade pattern between developing (Asia) and developed (Europe) countries as follows. Asian countries export mainly primary goods to European countries and by the same time import consumer goods from develop countries. As part of larger economic activity domestically for producing larger share of export, also result in larger income for demanding more varieties of consumer goods. Due to exchange rate differential and pressure on balance of payment make the pattern of trade where each developing countries compete for similar market, i.e. developed countries rather than export to their neighborhood, i.e. Asian market that has typical or similar economic structure.

The second stage is indicated by a little change in composition of export and import from Asia to Western Europe. As the import has increase from not only consumer goods but also capital goods (machinery and raw material), some Asian countries then able to produce consumer goods with export oriented. Some imported raw material for domestic production has significant share of cost production; therefore, industries try to substitute imported material with domestically oriented input. Gradually the flows of import change from consumer goods into capital goods. For this reason, the second stage also known as import substitution period.

The third stage is illustrated by the slowing-down flow of export between the two regions. In Western Europe, imported raw and primary material from Asia has enough for supporting the development process in the region. The countries have focused on building railways and highways. At the same time, in Asian countries as the result of import substituting policies, trade has been created between the countries in the regions. Some countries export primary goods, other start to export consumer goods such as lighting devices.

The fourth stage is determined by the rise of some Asia countries whose produce similar capital goods that were imported from Western Europe (Akamatsu, 1962). The capital goods produced in Asia gradually replacing the one imported from Europe. This condition starts rising the tension between Asia producers and Europe producers. The fifth stage is determined by the European countries slowing the raw material from Asia and start processing domestically produced raw material with high and sophisticated machine. Less developed or developing countries in Asia start prioritizing where to import capital goods, either from the native countries (Europe) or from neighborhood countries in Asia.

The six stage is the period when developing Asia countries start to produce manufactured goods. The capital goods are imported from Europe, while raw material is supported either from domestic supply or import from Europe. The last stage is the period where the developing countries start to develop manufacturing industry and this period also indicated by flows of manufactured export from Asia to Europe. Even though Akamatsu (1962) does not declare in which periods is every stage undertaken, but according to economists, India and China have come to the seventh stages.

2.2. Product Mapping

Following Widodo (2008), product mapping is a graph that describe a combination of domestic trade-balance and international competitiveness. Tool analysis for domestic trade-balance is known as Trade Balance Index (TBI) and the one for measuring international

competitiveness is Revealed Symmetric Comparative Advantage (RSCA). The combination of TBI and RSCA in one graph is called the product mapping. RSCA index describe domestic comparative advantage by comparing the ratio of export volume of particular product with the world total export, excluding the export value of the country. To observe the export and import condition of particular product such as agriculture, TBI analyzes is implemented. TBI describe whether a country is net exporter or net importer in selected product.

2.3. Empirical studies

Product mapping and flying geese concept was initially developed by Shinohara (1976) well known for "*boomerang effect*"; and extended to flying geese model by Kojima (2000). Widodo (2008) extends these boomerang effect and flying geese into product mapping. Widodo (2008) investigated flying geese model in manufacturing industry in East Asia. Initially, manufacture sector grow with unskilled labor-intensive, but it further grow with skilled labor intensive and technology-intensive. Widodo (2008) also reports that there is industry transfer in Asia, particularly Japan and Korea as lead-goose and ASEAN plus China geese-follower. Furthermore, China, Thailand, and Indonesia have comparative advantage in producing manufacture product, which is produced with unskilled labor. Agustin *et al.* (2014) investigate the trade relation between Indonesia and China. These study report that wood products, paper products and furniture relatively have comparative advantages Indonesia is net exporter for these product. The rest of manufacture products, which is counted as 73,91 percent output from manufacture industry have no comparative advantage and therefore has become net-importer country.

Ishchukova and Smutka (2014) investigate the product mapping of agricultural product in Russia. Both authors report that majority of agriculture product in Russia fall in D category, which means the product have comparative and Russia become net-importer country. This means Russia has negative RSCA and negative TBI. According to Ishchukova and Smutka

(2014) factors that influence the inefficiency in agricultural product in Russia is geographical disadvantages. Specific agricultural products that very sensitive with extreme weather are bananas, apricots, coconuts, meat, tea, and coffee.

Sabaruddin (2015) investigate product mapping and export competitiveness for agricultural output for Indonesia and China. The author applied various model for describing product mapping. These models are Software for Market Analysis and Restrictions on Trade (SMART), Social Accounting Matrix 2008 (SAM 2008), Normalized Revealed Comparative Advantage (NRCA) and Product Mapping. SMART model. All the four models indicate that initially all agricultural products from Indonesia, especially in category primary output from Indonesia has comparative-advantages compare to similar product from China. However, as the time passing, the opposite is true. Indonesian agricultural product move to dis-advantage group, while China product move to having comparative advantage. Recently, all primary products from China have high comparative advantage, which make China become net exporter agricultural output, while Indonesia become net importer. There are two possible causes why Indonesia has experienced in domestic competitiveness decrease: high cost economy and high dependency in imported raw material. When there is negative shock in international market, imported inflation will hit Indonesian economy.

3. RESEARCH METHODOLOGY

3.1 . Data

This paper utilizes data export and import, which is collected from the United Nation Commodity Trade Statistics Database (UN-COMTRADE). Our study will focus on the product mapping of main agricultural products, i.e. food and live animal. Following the international classification from the United Nation, this study will investigate the product with the 4-digit Standard International Trade Classification (SITC) Revision 2. Based on the United nations Conference on Trade and Development/World Trade Organization which determined the SITC

Revision 3, the product of food and live animals chiefly for food is classified into two part, namely: primary products (55 products) and resource-based manufactures: agro-based (31 products).

3.2 . Product Mapping

Product mapping of the product with SITC 0 (food and live animal), two pre-calculated data; the Revealed Symmetric Comparative Advantage (RSCA) and the Trade Balance Index (TBI) will be preserved. The RSCA is an extension of Revealed Comparative Advantage (RCA) which was introduced by Balassa (1965). The RCA concept that was promoted by Balassa is calculated as:

$$RCA_{ij} = \frac{\left(x_{ij} / x_{in}\right)}{\left(x_{rj} / x_{rn}\right)} \quad (1)$$

In equation (1), x_{ij} the total export of country i for the product classification or SITC j, x_{in} the total value of export from country i, minus the total export of product SITC j. Meanwhile, x_{rj} is the total export from the rest of the world (world) for the product SITC j minus the value of export with similar SITC from country i. Next, x_{rn} is the total export of the world minus the total export value of country i. The formula of RCAij will result in value between 0 until infinity. RCA value below 1 means that country I does not have comparative advantage for product x; similarly if the RCA value is above 1, the product x from country i is having a comparative advantage. The index value of RCA either above or below 1 cannot be compared directly because it is asymmetric. To avoid this asymmetric result, Laursen (1998) proposed new formula for calculating RCA index. Laursen (1998) modified the RCA index from Balassa (1965), which is formulated as follows:

$$RSCA_{ij} = \frac{\left(RCA_{ij} - 1\right)}{\left(RCA_{ij} + 1\right)} \quad (2)$$

Based on the formula (2), the $RSCA_{ij}$ now stand for Revealed Symmetric Comparative Advantage of country i for product j or $RSCA_{ij}$. Equation (2) indicate that the value of $RSCA_{ij}$ now on the range from minus 1 to 1 ($-1 \leq RSCA \leq 1$). Interpretation of RSCA index is, for RSCA index with value below 1 means that a country has not comparative advantage (comparative disadvantage) for determined product classification. On the other hand, when the RSCA index is above 1, means a country has comparative advantage for product x.

To measure whether a country is net exporter or net importer for a particular product, Lafay (1992) propose an analytical formula namely the Trade Balance Index (TBI). The TBI index is calculated based on the following formula:

$$TBI_{ij} = \frac{\left(x_{ij} - m_{ij}\right)}{\left(x_{ij} + m_{ij}\right)} \qquad (3)$$

Where the m_{ij} is the total value of import of country i for the particular group of product or SITC j. The TBI index also ranges from minus 1 to 1. A negative value of TBI means that a country is a net importer for goods x. On the other hand, a positive value of TBI means that the country is net exporter. The TBI value of -1 indicates the country just do not produce goods x for SITCj, and the domestic consumption is entirely fulfilled from import. The opposite is true, when the TBI value is 1. In this case a country is not consuming product x SITCj, but producing the product the purpose of export.

Widodo (2008) argue that empirically it could be true that a country having comparative advantage for a particular product (RSCA>1), but the country does not a net exporter (TBI>1) for the product. Similarly true that even though a country has a comparative disadvantageous for product x, but it does not mean that this country is net importer for the product x. Combining the RSCA and TBI index can create the product mapping, which will classify a product and a country into four categories. The first categories are a country that her product(s) have comparative advantage and the country is a net-exporter product. The second categories is a

country produce products that have comparative advantage but the country is net importer one. The third categories are a country has no comparative advantage for a particular product, but the country is net exporter for the particular product. Lastly, a country that has no comparative advantage for a particular product, and it is a net importer for the determined product. To figure out this classification, the graph below is presented.

Revealed Symmetric Comparative Advantage (RSCA)	TBI<0	TBI>0
RSCA>0	**Group B** Have Comparative Advantage No Export-Specialization (net-importer) (RSCA>0) and TBI<0)	**Group A** Have Comparative Advantage Have Export-Specialization (net-exporter) (RSCA>0) and TBI>0)
RSCA<0	**Group D** No Comparative Advantage No Export-Specialization (net-importer) (RSCA<0) and TBI<0)	**Group C** No Comparative Advantage Have Export-Specialization (net-exporter) (RSCA<0) and TBI>0)

Trade Balance Index (TBI)

Figure 1. "Product Mapping"
Source: (Widodo, 2008)

4. EMPIRICAL RESULTS AND DISCUSSION

4.1. Agricultural Sector Policy in Indonesia

There are four stages in agricultural development policy in Indonesia, which is implemented between 1960s-2012 (OECD, 2012). The first stage is period of agricultural policy with the focus on extension of agriculture rice field as well as adoption of better technology, which was implemented during the 1960s-1980s. This policy is proposed by the new era of government under the Mr. Soeharto presidential period. It was recorded that rice, vegetable and fruit production were increased significantly, so that enough to distributed in major areas of Indonesia. Strategic policies were adopted in this first stage, which includes

minimum or floor price policy; product distribution; transfer subsidy for seeds, fertilizers, and pesticides; improvement for credit access; and development of irrigation.

The second stage is period between 1980s-1996. During this period, policy for agricultural sector was not as expansive as the first stage. Shock in world oil prices results in the limited budget for supporting agricultural sector. Market of corn and soybean has grown due to these two products are regulated by market mechanism. To induce international trade, barriers to trade start to be eliminated. Import and regulation of agricultural product, mainly rice is regulated by *Badan Urusan Logistik* (BULOG).

The third stage is the period 1997-1999, the time when the financial crisis hit Asia and Indonesia. Due to slowing in economic activity, Indonesia follows structural adjustment program from International Monetary Fund (IMF). By following specific program of IMF, Indonesia now eligible for getting business allowance and running program directed by IMF for eliminating the negative impact of the crisis. To guarantee food security issue, government of Indonesia delegate special right to the BULOG for regulating import of rice. Free trade for agricultural product is introduced by eliminating import quota and tariff, as well as eliminating subsidy for fertilizer. Poverty reduction program is initiated by distributing subsidized rice for the poor family, known of "*Beras Untuk Orang Miskin*/RASKIN".

The fourth stage is period between 2000 until now. In this stage, agricultural sector get special attention from the government. Policy for increasing agricultural sector productivity is supported by increasing government expenditure for fertilizer and seed subsidy. To protect domestic farmer, import banned for rice and sugar is issued by the Ministry of Trade. Great concerns on agricultural sector the supported by the development of irrigation system and banned for agricultural output transshipment.

Since 2000s, the statistics data of agriculture show that the contribution of agricultural sector to GDP decrease significantly. Between the period of 2006-2015 ratio of agriculture

sector to GDP has decrease for around 0.85 per cent annually; and by the same time, the ratio services sector to GDP has increase around 1.02 percent annually (ASEAN Secretariat, 2016) . This figure indicates that Indonesia experience a good progress into from low to middle-income country. Even though the contribution of agricultural sector has decrease significantly, but still this sector brings opportunity for 33 per cent of total employment.

4.2. "Product Mapping" of Agricultural Output in Indonesia

Data for the period 1984, 1994, 2004 and 2014from UN-COMTRADE indicates that overall the comparative-disadvantage of Indonesia agriculture product has decrease significantly. In 1984, there were 75 out of 86 products export of Indonesia has comparative advantage. This figure indicates around 87.21 percent of the products export in 1984 has not international competitiveness. However, in 1994, 2004 and 2014 the number of product that has no comparative advantage decrease significantly for 66, 60, and 59 products respectively. In the recent year, agricultural product are classifying into primary product, resource-based manufactures, and agro-based. Based on these classifications, it seems that agro-based product has progress better than primary product. There is a significant improvement in the number of agro-based output with comparative advantage compare to the primary products.

Based on the TBI classification, it seems that number of product that has net importer classification fluctuate significantly during 1984-2014. There were 58 products classified as net importer in 1984, and in become 48 products in 1994. The number increase slightly into 50 and 49 products by 2004 and 2014. Classified into the primary, agro-manufacture base and agro-based output, it seems that primary product relatively stagnant, neither decrease nor increase in the net importer classification.

Classifying the product mapping of Indonesian's agricultural product for the period 1984-2014 indicate that majority of the agricultural product fall into D classification. Product with D classification means that the product has comparative disadvantage and it is a net

importer. Majority of the product consumed domestically is fulfilled by import. This phenomenon is true either for primary or agro-based product. Several products remind in the D classification for almost 30 years. It was reported around 34 product in total; which consist of 21 primary products, and 13 of agro-based product.

We consider demand and supply sides factors that determined why Indonesia agricultural products do not have comparative advantage. From the demand side, the shortage in domestic food production due to high rate of population growth (1.5 % annually during 2004-2015) occurs while food production is lagged behind. A simple example is rice. Due to high rate of land conversion and rice production only in Java Island, shortage of rice might increase. This shortage of rice for consumption and as raw material for food processing is fulfilled by import (ASEAN Secretariat, 2016). From the supply side, low rice production is related with a significant decrease in agricultural labor, instability market, production with traditional technology, majority of farmers has very small land or rice field, low facility of infrastructure such as irrigation, and allocation budget. Some studies report that agricultural research and development is very limited in an agriculture country like Indonesia. Low disease control also increase incidence of crop loss (Briones and Felipe, 2013; Ginting and Aji, 2015).

A study by Osorio *et al.* (2011) reported that majority of agriculture expenditure for subsidy is misallocated. Even the budget allocation for subsidy fertilizer, seed, and other input subsidy is increased annually, but it is misallocated; around 40 per cent, large size farmers enjoying the benefit of subsidy; which is reported approximately 60 per cent. Rural infrastructure such as road is not well connected; therefore, market access is limited during the harvesting time. Almost 40-50 per cent of vegetable and fruit is destroyed during the transportation period. Majority of rural infrastructure were built in the Dutch occupation period, and there is no revitalization ever taken (Ginting and Aji, 2015).

Rice is one of the products that listed in D classification during the period of 1984, 1994, 2004, and 2014. Rice production is not comparatively advantage for Indonesia, and Indonesia has been one of main importer for rice. There are several reasons that might explain these conditions. In terms of farmers, majority of farmers are small and subsistence. Farmers in this category fall into condition of having low productivity and inefficiency in production. Indonesia also falls in trap of liberalization of rice market, and applying policy of single staple food (Dartanto, 2010; Mariyono, 2014; McCulloch, 2008; Timmer, 1996) .

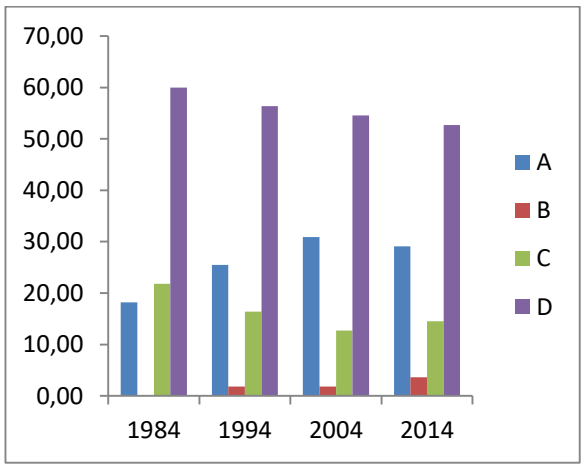

Figure 2a. Group of Primary Product

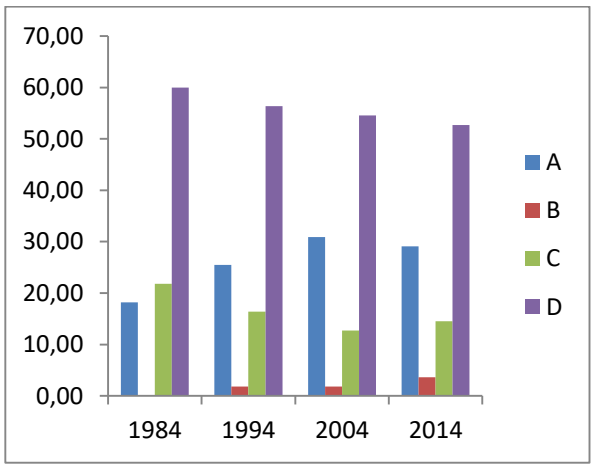

Figure 2b. Group of Resource-based Manufactures: Agro-Based

Figure 2a and 2b illustrated that the number of agricultural product in A classification has increased significance 2004 but it decrease again by 2014, however, in terms of percentage changes the numbers of A classification has increase (see table 1). During the 30 years, there are 8 product move to A classification; having comparative advantage as well having positive trade balance index. Seven out of eight of these products are agro-based products. Majority of products that moved to A classifications are belong to SITC 03; which consists of fish, crustaceans, mollusks; and SITC 07 which consists of coffee, tea, cocoa, and spices.

Regarding fish production which is belong to SITC 3; this is not only having comparative advantage in terms of value of export, but it also predicted will employing for about 15 billion people by 2030 (Phillips *et al.*, 2015). The economic value of fisheries from natural sea harvesting is larger compare to aquaculture production. Fishes is part of export commodity, which has high comparative advantage. Recent tight policy in fisheries related with illegal fishing has positive impact on fish production, and the export value has significant contribution on GDP (Varkey *et al.*, 2010).

Table 1. Changes in "Product Mapping" of Agriculture Output in Indonesia

Changes	Total Product			Primary product			Agro-Based product		
	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3	Period 1	Period 2	Period 3
A → A	11.63	22.09	25.58	16.36	25.45	27.27	3.23	16.13	22.58
A → B	0.00	0.00	1.16	0.00	0.00	1.82	0.00	0.00	0.00
A → C	0.00	0.00	2.33	0.00	0.00	1.82	0.00	0.00	3.23
A → D	1.16	0.00	0.00	1.82	0.00	0.00	0.00	0.00	0.00
B → A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B → B	0.00	1.16	1.16	0.00	1.82	1.82	0.00	0.00	0.00
B → C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B → D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C → A	10.47	5.81	1.16	9.09	3.64	0.00	12.90	9.68	3.23
C → B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C → C	4.65	8.14	5.81	5.45	5.45	7.27	3.23	12.90	3.23
C → D	4.65	8.14	5.81	7.27	7.27	5.45	0.00	9.68	6.45
D → A	0.00	1.16	2.33	0.00	1.82	1.82	0.00	0.00	3.23
D → B	1.16	0.00	0.00	1.82	0.00	0.00	0.00	0.00	0.00
D → C	17.44	4.65	5.81	10.91	7.27	5.45	29.03	0.00	6.45
D → D	48.84	48.84	48.84	47.27	47.27	47.27	51.61	51.61	51.61
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Notes: Period 1: 1984 → 1994; Period 2: 1994 → 2004; Period 3: 2004 → 2014

4.3. Export Performance and Comparison to Other Member ASEAN Economic Community (AEC)

Indonesia is the largest and the most populous country in ASEAN region, with the population growth 1.3 percent annually (ASEAN Secretariat, 2016). Unemployment rate in Indonesia reaches 5.9 percent and the labor participation rate around 66.6 percent. Compare to

other ASEAN member, Indonesia's economy can be classified as middle-income country, with the growth rate 4.9 percent for the period 2010-2015. Among ASEAN member, Cambodia has the highest growth rate (7.8 percent), while Brunei experience the lowest growth rate (-1.5 percent), and ASEAN on average growth rate is 4.8 percent. The inflation rate in Indonesia was stable, on average 6.4 percent annually. The demography and macro indicator may lead Indonesia as one of the leading country in ASEAN.

Agricultural sector is the primary and leading sector in Indonesia. Majority of the population rely on agricultural activity, especially for rural areas. Data from ASEAN Secretariat (2016) indicate that during the last five years (2009-2013), agriculture can generate employment for approximately 37.56 percent annually. This figure is relatively lower compare to other ASEAN countries, i.e.: Thailand (40.7 percent) and Viet Nam (49.7 percent).

However, there was a slightly slowing growth in Indonesia's agricultural sector during the 2000-2013. This is contributed by the slowing in labor participation rate with the rate 5.98 percent annually. Indonesia experience land conversion from agriculture to other sector was recorded the largest among ASEAN, i.e approximately 4.08 percent annually. Underutilization land in Indonesia relatively large approximately was 68.5 percent. According to Briones and Felipe (2013), productivity rate for land in Indonesia and ASEAN relatively better compare to other regions.

Regarding trade activity, based on the data from UN COMTRADE SITC revision 2, for the period 30 years (1984-2014) indicates that ratio of total trade value from Indonesia to ASEAN Trade ranked as the fourth after Singapore, Thailand, and Malaysia. Investigate at more detail trade data, it shows that total trade value based on SITC Revision 2 with code 0 (food and live animals); Indonesia ranks at the second largest trader, but by 2014 this ranks at the third one. However, there is great difference in trade activity for the last ten years. For the period of 1984-2004, Indonesia is the largest exporter for the product food and live animal,

however, this figure is reversed by 2014. Indonesia becomes the largest net importer for food and live animal for ASEAN. This implies Indonesia was a net exporter country for the last 20 years (1984-2004), but it becomes a net importer for primary agricultural product by 2004-2014. According to Briones and Felipe (2013), quick labor transformation from agricultural dominated to services, trade and manufacturing I one reason why agricultural product decrease significantly. High rate in population growth also lead to high demand, and this contribute on food shortage. The solution follows market mechanism, import for clearing the food market.

Figure 3 describe the product mapping of product classification for SITC Revision 2, code 0. This product has comparative advantage in the period 1984-2004. Among ASEAN countries, Thailand is consistent the net exporter for SITC Revision 2 code 0 product for period 1984-2014. On the other hand, Malaysia and Singapore are net importer during the same period

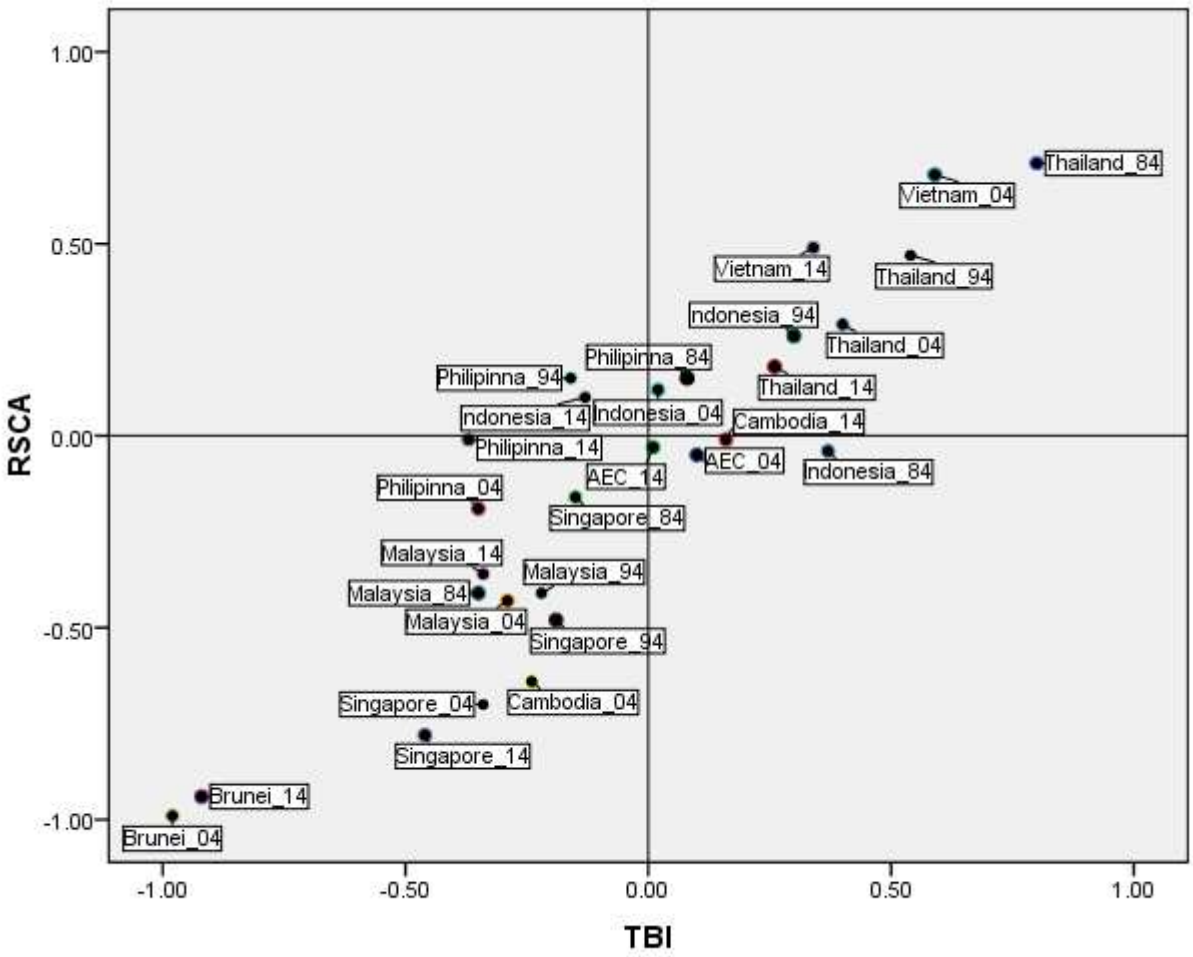

Figure 3. Product Mapping for Primer Product

Observing product in agro-based classification, Indonesia is relatively gain competitiveness. For the period of 1984 Indonesia was a net importer for this product, but Indonesia becomes net exporter by 1994-2014. Malaysia and Singapore are net importer of this agro-based product for 1984-2014, while the rest of ASEAN member lead as net exporter.

Overall, the process of agricultural development in ASEAN member has reached the stage of agricultural surplus; agricultural outputs become the input contributors for other sectors. There is a smooth integration process for agricultural development with growth of infrastructure and market access (Briones and Felipe, 2013).

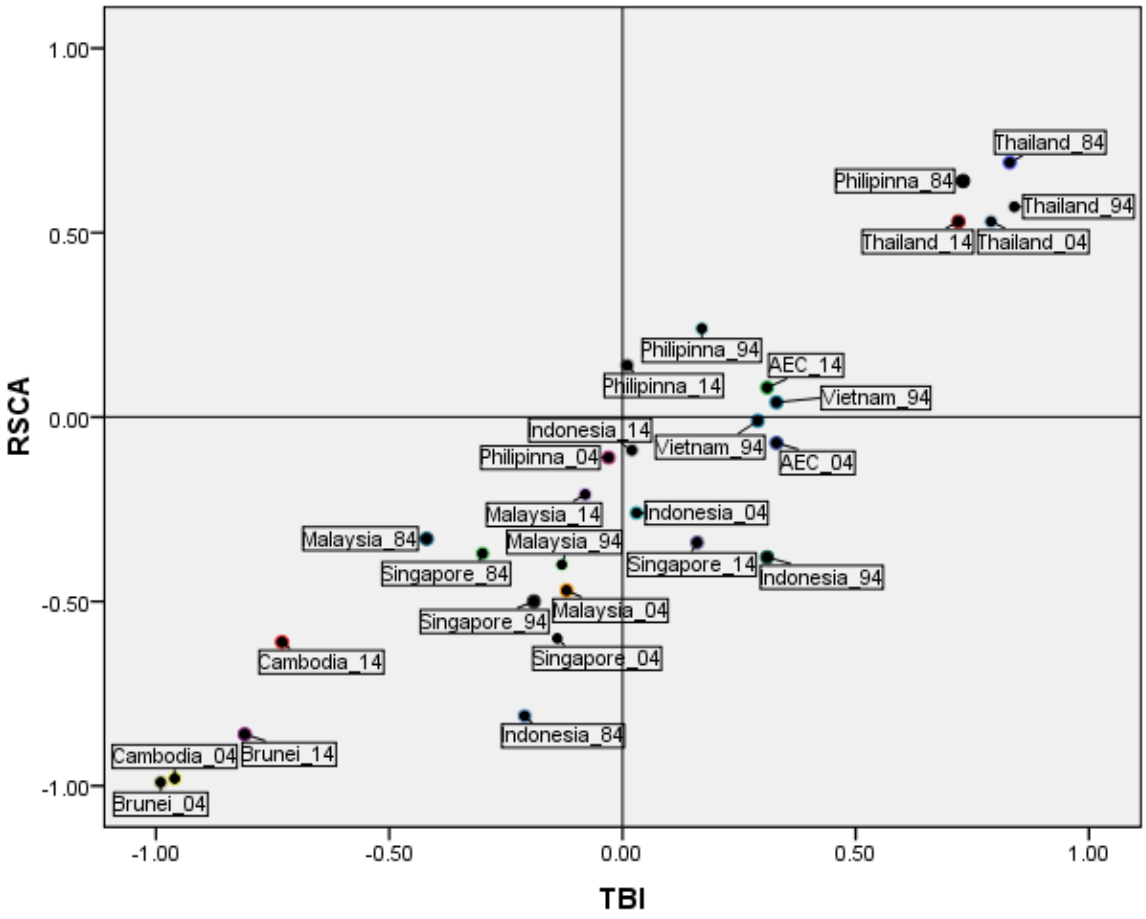

Figure 4. Product mapping for Agro-Based Product

5. CONCLUSIONS

This paper analyzed the product mapping of agricultural product, in either primary classification (food and live animal) and agro-based product. To analyze the product mapping, two steps calculations are needed. Firstly, calculate the RSCA index as well as the TBI index. Secondly, the product mapping is constructed. The product mapping indicates the following things. Firstly, during the periods of 1984-2014, Indonesia has experience from follower-geese to lead geese for the product with classification 03; which consist of fish, crustaceans, mollusks, and preparations thereof. Other product which also shifting in classification is SITC 07, which consist of coffee, tea, cocoa, spices, and manufactures thereof.

Secondly, majority of Indonesia primary products are follower-geese; the product has no comparative advantage and it is a net importer product. Rice is part of follower-geese product. This is quite strange in macro perspective. As a large and populous country, which majority of the population eat rice as the main staple food, Indonesia become net importer for rice? Even though it sound economically rational, buying rice from international market with more competitive price, but in terms of employment opportunity and food sustainability in the long run, food policy need to be re-design.

Thirdly, there is good opportunity to push the production of agro-based agricultural output to be a lead-goose in ASEAN. During the last ten period, (2004-2014), agro-based output has significant improvement in competitiveness index (RSCA) and it net import value significantly increase, from import dominated to export leads. Product in SITC 03 (agro-based) show a significant movement from net importer in 1984-1994, but it is a net exporter after 1994. Agro-based industry product means that production process has involving better technology such as the application of best quality of seeds, fertilizer and other best practices. There is good opportunity to push these products integrate with other sector such as services, especially tourism. Introducing agro-based production process as part of tourism strategy, as a

strategy action for combining infrastructure support for both agriculture and tourism development process.

Fishing activities become one of the potential output in agricultural sector. Fishing has great potential contribution to generate income and employment, since this activity not only supported by good geographical location, where fish production relatively efficient compares to other region. Potential market for Indonesia fish production is not only to Europe but also in Asia such as Japan as fish lover country.

This study proposes the following policy recommendation based on our empirical finding. Firstly, regarding rice. Because Indonesia main food staple is rice, and it is consumed as lunch and dinner for majority of population, rice consumption will very dominate. To guarantee food security and food availability, long run policy target for rice production should be determined. Government can implement intensive or extensive program, as well provide better incentives for farmers to produce rice. In terms of fish production, strategic policy implemented by ministry of marine and fisheries is a good moment for supporting fishing activities. Protecting national marine from illegal fishing and introducing sustainable fishing through tool regulation will guarantee sustainability of marine and fisheries activity in the end. Develop integrated infrastructure for marine industry such as port, market for fish and tool for catching fishes should be part of long run policy for supporting this sector.

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Appendix 1. Classification 4-digit SITC Rev. 2

No.	SITC Rev. 2	Commodity Description	Classification
1	0011	Animals of the bovine species (including buffaloes), live	Primary Product
2	0014	Poultry, live	Primary Product
3	0111	Bovine meat, fresh, chilled or frozen	Primary Product
4	0112	Meat of sheep and goats, fresh, chilled or frozen	Primary Product
5	0113	Pig meat fresh, chilled or frozen	Primary Product
6	0114	Poultry, dead and edible offal, fresh, chilled or frozen	Primary Product
7	0116	Edible offal of headings 0011-5 and 0015, fresh, chilled or frozen	Primary Product
8	0118	Other fresh, chilled or frozen meat or edible meat offal	Primary Product
9	0121	Bacon, ham, other dried, salted or smoked meat of domestic swine	Primary Product
10	0129	Meat and edible meat offal, nes, in brine, dried, salted or smoked	Primary Product
11	0141	Meat extracts and juices; fish extracts	Agri-Based Product
12	0142	Sausages and the like, of meat, meat offal or animal blood	Agri-Based Product
13	0149	Other prepared or preserved meat or meat offal	Agri-Based Product
14	0223	Milk and cream fresh, not concentrated or sweetened	Primary Product
15	0224	Milk and cream, preserved, concentrated or sweetened	Primary Product
16	0230	Butter	Agri-Based Product
17	0240	Cheese and curd	Agri-Based Product
18	0251	Eggs, birds', and egg yolks, fresh, dried or preserved, in shell	Primary Product
19	0252	Eggs, birds', egg yolks, fresh, dried or preserved, not in shell	Primary Product
20	0341	Fish, fresh or chilled, excluding fillet	Primary Product
21	0342	Fish, frozen, excluding fillets	Primary Product
22	0343	Fish fillets, fresh or chilled	Primary Product
23	0344	Fish fillets, frozen	Primary Product
24	0350	Fish, dried, salted or in brine; smoked fish	Agri-Based Product
25	0360	Crustaceans and molluscs, fresh, chilled, frozen, salted, etc	Primary Product
26	0371	Fish, prepared or preserved, nes	Agri-Based Product
27	0372	Crustaceans and molluscs, prepared or prepared, nes	Agri-Based Product
28	0411	Durum wheat, unmilled	Primary Product
29	0412	Other wheat and meslin, unmilled	Primary Product
30	0421	Rice in the husk or husked, but not farther prepared	Primary Product
31	0422	Rice, semi-milled or wholly milled	Primary Product
32	0440	Maize, unmilled	Primary Product
33	0452	Oats, unmilled	Primary Product
34	0459	Buckwheat, millet, etc, and other cereals, unmilled, nes	Primary Product
35	0460	Meal and flour of wheat and flour of meslin	Agri-Based Product
36	0470	Other cereal meals and flour	Agri-Based Product
37	0481	Cereal grains, worked or prepared, not elsewhere specified	Agri-Based Product
38	0482	Malt, roasted or not, including flour	Agri-Based Product
39	0483	Macaroni, spaghetti and similar products	Agri-Based Product
40	0484	Bakery products	Agri-Based Product
41	0488	Malt extract; cereals preparations with less 50% of cocoa	Agri-Based Product
42	0541	Potatoes, fresh or chilled, excluding sweet potatoes	Primary Product
43	0542	Beans, peas, other leguminous vegetables, dried, shelled	Primary Product

No.	SITC Rev. 2	Commodity Description	Classification
44	0545	Other fresh or chilled vegetables	Primary Product
45	0546	Vegetables, frozen or in temporary preservative	Primary Product
46	0548	Vegetable products roots and tubers, nes, fresh, dried	Primary Product
47	0561	Vegetables (excluding leguminous), dried, evaporated, etc	Agri-Based Product
48	0564	Flour, meals and flakes of potatoes, fruit and vegetables, nes	Agri-Based Product
49	0565	Vegetables, prepared or preserved, nes	Agri-Based Product
50	0571	Oranges, mandarins, etc, fresh or dried	Primary Product
51	0572	Other citrus fruits, fresh or dried	Primary Product
52	0573	Banana, plantain, fresh or dried	Primary Product
53	0574	Apples, fresh	Primary Product
54	0575	Grapes, fresh or dried	Primary Product
55	0576	Figs, fresh or dried	Primary Product
56	0577	Nuts edible, fresh or dried	Primary Product
57	0579	Fruit, fresh or dried, nes	Primary Product
58	0582	Fruit, fruit-peel and parts of plants, preserved by sugar	Agri-Based Product
59	0583	Jams, jellies, marmalades, etc, as cooked preparations	Agri-Based Product
60	0585	Fruit or vegetable juices	Agri-Based Product
61	0586	Fruit, temporarily preserved	Agri-Based Product
62	0589	Fruit prepared or preserved, nes	Agri-Based Product
63	0611	Sugars, beet and cane, raw, solid	Agri-Based Product
64	0612	Refined sugar etc	Agri-Based Product
65	0615	Molasses	Agri-Based Product
66	0616	Natural honey	Agri-Based Product
67	0619	Sugars and syrups nes; artificial honey; caramel	Agri-Based Product
68	0620	Sugar confectionery and preparations, non-chocolate	Agri-Based Product
69	0711	Coffee green, roasted; coffee substitutes containing coffee	Primary Product
70	0712	Coffee extracts, essences or concentrates	Primary Product
71	0721	Cocoa beans, raw, roasted	Primary Product
72	0722	Cocoa powder, unsweetened	Primary Product
73	0723	Cocoa butter and paste	Primary Product
74	0730	Chocolate and other preparations containing cocoa, nes	Agri-Based Product
75	0741	Tea	Primary Product
76	0742	Mate	Primary Product
77	0751	Pepper of "piper"; pimento of "capsicum or pimenta"	Primary Product
78	0752	Spices, except pepper and pimento	Primary Product
79	0811	Hay and fodder, green or dry	Primary Product
80	0812	Bran, sharps and other residues derives of cereals	Primary Product
81	0813	Oilcake and other residues (except dregs)	Primary Product
82	0814	Flours and meals, of meat, fish,etc, unfit for human; greaves	Primary Product
83	0819	Food waste and prepared animal feed, nes	Primary Product
84	0913	Lard, pig and poultry fat, rendered or solvent-extracted	Primary Product
85	0914	Margarine, imitation lard and other prepared edible fats, nes	Primary Product
86	0980	Edible products and preparations, nes	Agri-Based Product

Appendix 2. Indonesia Export and Import at Classification 4-digit SITC Rev. 2, 1984, 1994, 2004, and 2014 (in million).

No.	SITC Rev. 2	Export				Import			
		1984	1994	2004	2014	1984	1994	2004	2014
1	0011			3,917		7,125,843	45,180,516	91,373,783	682,130,037
2	0014	104,167	1,122,871	5,104	356	4,834,056	10,358,261	8,660,969	5,140
3	0111		77,863	106,064		5,620,805	10,338,422	27,112,848	346,811,974
4	0112		160,271	11,555		172,784	791,075	2,012,853	10,831,447
5	0113		149,031	1,346,360	16,928	110,670	436,688	194,209	1,336,962
6	0114		3,462,553	161,342	37	421,516	3,419,976	1,032,633	2,217,237
7	0116		3,199	78,515	83,193	194,823	7,798,237	24,971,679	85,735,575
8	0118	4,177,304	15,189,998	11,595,669	22,908,569	47,690	91,069	78,952	234,989
9	0121		74,055	12,911	354	71,737	22,524	43,241	
10	0129	1,548,241	56,107	123,839	626	73,805	163,823	248,726	
11	0141		193,548	306,783	461,573	195,620	16,144	362,511	1,198,002
12	0142		37,029	301,309	69,071	106,782	89,752	1,677,348	5,559,136
13	0149	14,254	65,572	119,571	926,882	861,696	2,080,620	2,566,404	15,063,838
14	0223		100,358	8,908,280	34,745,402	150,060	13,251,915	33,751,478	45,607,168
15	0224	390	3,260,908	58,611,700	54,337,666	46,443,116	83,761,936	343,278,962	1,109,650,105
16	0230		920	63,866	656,060	19,338,468	16,328,066	26,284,087	104,922,131
17	0240		79,981	1,164,927	2,500,327	3,609,880	8,883,471	27,592,574	96,722,271
18	0251	29	69,699	212,483	1,200	204,632	391,665	370,426	
19	0252		1,825	111,414	627	10,988	273,358	1,935,526	8,128,709
20	0341	3,835,097	202,545,536	195,887,288	223,808,256	190,562	818,722	3,150,602	3,397,946
21	0342	11,011,334	135,812,528	166,743,108	534,901,590	1,016,748	8,885,983	13,922,099	131,664,644
22	0343		6,512,945	9,902,256	45,809,081	1,188	173,875	101,305	37,043
23	0344	48,641	24,506,630	91,638,631	231,974,304	16,182	773,474	1,444,202	1,857,088
24	0350	5,466,640	83,550,176	50,547,255	77,807,780	55,570	377,697	4,216,052	1,477,063
25	0360	202,459,168	1,054,288,320	945,707,678	1,997,625,015	157,175	2,844,018	60,585,247	71,934,674
26	0371	4,442,829	59,651,356	121,659,665	397,809,581	1,972,147	1,365,132	2,744,455	21,533,274
27	0372	42,107	18,091,140	121,281,103	737,471,708	82,601	310,159	1,235,584	3,246,469

No.	SITC Rev. 2	Export				Import			
		1984	1994	2004	2014	1984	1994	2004	2014
28	0411		345	479,028	609	386	621,225	31,707	38,431,854
29	0412			2,545,877		276,054,496	579,059,968	838,545,410	2,348,830,304
30	0421		1,918,512	57,723	66,837	68,527	4,027,063	8,876,517	4,547,674
31	0422		25,960,088	398,789	693,091	131,995,792	153,294,448	52,876,279	383,630,783
32	0440	21,807,860	5,617,116	9,074,357	13,264,014	9,659,586	153,509,840	177,674,700	810,417,159
33	0452			49,971	2,577	136,454	66,803	191,896	239,951
34	0459	100,000		67,326	97,613	176,178	4,184,179	2,476,316	19,778,524
35	0460		5,433	11,959,160	39,953,496	2,989,097	5,716,727	79,532,352	74,431,165
36	0470	1,465	1,866,813	3,855,083	1,043,706	3,195,762	2,064,056	5,578,683	508,661
37	0481	1,235,753	487,589	3,067,992	6,547,563	2,555,742	5,938,770	6,186,818	23,479,691
38	0482	11,613		56,945		4,342,027	6,244,217	9,952,759	19,530,187
39	0483	748,854	9,109,344	26,916,693	12,379,895	855,640	1,622,108	2,787,867	5,442,352
40	0484	297,398	11,231,065	69,054,632	394,489,290	355,770	3,434,676	15,048,578	61,073,918
41	0488	3,717,695	10,890,592	32,994,069	61,166,276	1,485,285	5,823,901	28,208,766	223,982,432
42	0541	1,383,078	13,887,644	3,556,129	3,659,327	912,255	1,036,811	1,671,568	23,806,129
43	0542	100,727	607,827	5,780,074	35,909,761	2,226,651	57,169,880	14,580,704	111,664,058
44	0545	4,913,141	28,162,600	16,518,043	18,092,876	3,636,475	33,059,768	77,227,209	468,767,808
45	0546	1,758	2,309,007	7,347,405	16,327,920	326,465	6,779,444	16,025,886	46,533,872
46	0548	32,388,816	64,755,984	26,507,321	38,617,260	1,293,559	1,119,795	706,679	1,443,686
47	0561	28,789	1,637,111	497,582	3,300,690	12,249,314	8,651,626	9,182,291	28,864,281
48	0564	893,679	5,271,108	15,188,096	13,122,581	309,214	3,654,292	6,136,658	11,289,079
49	0565	197,945	34,925,088	22,054,938	15,544,770	2,160,013	7,843,474	8,338,642	24,931,348
50	0571	3,831	19,778	1,109,012	14,205	28,559	17,367,816	50,312,648	161,979,305
51	0572		16,274	93,467	403,639	4,498	250,172	497,771	13,506,834
52	0573	379	5,882,993	778,506	16,177,426	583,736	125,765	188,839	260,954
53	0574		10,886	274,894	1,154	64,676	26,945,520	63,353,006	200,243,139
54	0575		47,086	545,527	45,462	311,166	8,141,603	26,418,996	154,776,390
55	0576		10,830	31		58	606	4,733	11,024

No.	SITC Rev. 2	Export				Import			
		1984	1994	2004	2014	1984	1994	2004	2014
56	0577	10,511,997	79,742,616	138,231,880	614,910,297	18,270	2,262,446	3,456,217	16,509,347
57	0579	1,255,726	6,966,977	11,779,037	22,524,304	52,092	14,537,336	71,544,125	239,601,701
58	0582	58,720	47,868	100,073	484,635	312,011	465,190	341,849	438,841
59	0583		233,636	2,358,051	5,099,876	409,996	869,295	3,231,041	14,742,717
60	0585		8,786,266	26,649,001	31,284,627	1,310,518	4,244,545	7,336,204	30,187,589
61	0586		179,328	157,853	1,132,811	51,930	106,954	586,825	2,346,916
62	0589	1,040,473	48,664,432	84,146,458	190,584,604	926,467	2,853,211	4,590,399	25,793,332
63	0611		11,417	97,184	66,535	63	5,868,953	96,147,923	1,282,200,361
64	0612		8,194	1,824,584	1,499,084	155,079	37,493,668	169,300,480	46,735,239
65	0615	26,912,024	46,642,760	11,144,802	111,874,439	31,435	2,677,581	6,676,221	19,231,838
66	0616	8,412	3,097	1,481,033	1,269,568	212,264	308,397	3,354,875	8,851,165
67	0619	13,158	1,808,975	4,580,803	38,650,773	2,485,864	9,634,974	20,862,603	161,921,403
68	0620	573,478	24,148,192	67,766,391	132,465,622	1,592,473	6,013,681	27,789,673	47,842,508
69	0711	565,261,696	745,803,904	294,114,392	1,039,609,487	180,247	1,238,649	6,866,738	46,767,784
70	0712	2,338,021	7,830,098	14,996,660	320,670,375	29,619	307,278	17,984,888	94,538,559
71	0721	50,282,136	213,113,440	369,862,997	196,492,391	1,632,439		50,656,255	341,437,411
72	0722	486,628	3,883,362	42,270,961	104,238,972	483,834	952,271	8,306,565	37,340,345
73	0723	2,516,797	56,168,884	117,997,163	894,513,058	286,319	454,188	954,369	13,649,467
74	0730	294,384	6,845,059	18,836,239	45,052,915	654,929	6,001,966	26,045,625	76,577,557
75	0741	226,281,792	96,180,936	116,017,816	134,583,937	111,021	879,707	5,531,438	24,430,241
76	0742	1,250		4,309,618	78,938	14,435	262	4,241	
77	0751	64,282,836	79,149,872	56,710,078	330,032,045	727,706	3,495,595	3,344,670	76,203,580
78	0752	47,480,476	87,942,488	108,483,783	330,838,841	2,617,629	4,751,929	9,300,090	23,212,499
79	0811	756,853	303,827	989,853	24,794,678	17,183	1,345,654	306,784	2,150,696
80	0812	41,515,448	37,843,896	36,298,840	110,913,376	3,760,033	765,701	2,450,895	5,773,636
81	0813	22,341,820	82,617,336	101,987,656	604,402,458	66,888,104	172,349,408	564,672,279	2,259,208,185
82	0814	113,525	166,230	3,542,608	4,110,148	27,907,956	166,659,280	51,753,668	142,532,843
83	0819		36,291,188	9,672,498	32,432,961	2,495,032	75,463,864	281,354,774	865,901,236

No.	SITC Rev. 2	Export				Import			
		1984	1994	2004	2014	1984	1994	2004	2014
84	0913			480,331	135,326	898	131,698		11,956
85	0914		1,811,978	139,364,313	778,219,079	138,703	1,395,834	2,930,147	34,007,388
86	0980	2,717,613	28,379,436	108,144,612	842,346,265	9,601,987	54,383,864	154,003,605	622,009,446
Total		**1,368,028,245**	**3,535,271,224**	**3,941,838,831**	**12,000,150,649**	**676,171,061**	**1,894,894,510**	**3,785,248,499**	**14,575,861,270**
Total Indonesia		**21,887,763,284**	**40,053,414,784**	**71,582,468,122**	**176,036,194,332**	**13,882,065,984**	**31,983,471,240**	**46,524,531,358**	**178,179,340,198**